



LUXEON 5050

High efficacy and superior robustness in a high power package, enabling cost-effective system design



Now With NightScape Technology

NightScape Technology enables white light with blue light content that is less than 2%.

LUXEON 5050 is a high power package that provides high luminance from a super robust package to enable cost effective and reliable fixture designs. LUXEON 5050 uses an industry standard 5050 surface mount package with a fairly small Light Emitting Surface (LES). LUXEON 5050 product family includes LUXEON 5050 Round LES, LUXEON 5050 Square LES and LUXEON 5050 HE and LUXEON 5050 HE Plus, four product lines. LUXEON 5050 comes in 70CRI, 80CRI and 90CRI with a wide range of CCTs, and offers hot-color targeting to ensure that the LEDs are within color target at application conditions of 85°C.

FEATURES AND BENEFITS

- Superior lm/W enables outstanding efficacy in end application
- Extremely reliable package design affirms long lifetime in harsh environments^[1]
- Robust coating design for enhanced sulfur protection capability (LUXEON 5050 Square LES)^[1]
- Two voltage configurations are compatible with low cost high efficacy drivers
- Low R_{th} enables effective thermal dissipation design for higher efficiency
- Hot-color targeting ensures color is within ANSI bin at 85°C
- 3-step and 5-step MacAdam ellipse binning structure ensures excellent color uniformity

1. Refer to reliability datasheet for more details.

PRIMARY APPLICATIONS

- Street Lights
- High Bay
- Low Bay
- Flood Lights
- Wall Pack
- Landscape Lighting
- Downlights

LUXEON 5050 product performance at rated current, T_j=25°C.

PART	NOMINAL CCT ^[1]	MINIMUM CRI ^[2, 3]	LUMINOUS FLUX ^[2, 3] (lm)		TYPICAL LUMINOUS EFFICACY (lm/W)	LUMINOUS FLUX ^[2, 3] (lm)	TYPICAL LUMINOUS EFFICACY (lm/W)	PART NUMBER	
			MINIMUM	TYPICAL		TYPICAL			
			RATED CURRENT ^[4]				SAME DRIVING CURRENT ^[5]		
LUXEON 5050 Round LES 24V	2200K	70	515	587	150	350	169	L150-2270502400000	
	2700K	70	535	640	164	382	184	L150-2770502400000	
	3000K	70	553	667	171	398	192	L150-3070502400000	
	3500K	70	600	686	176	410	197	L150-3570502400000	
	4000K	70	580	693	178	414	199	L150-4070502400000	
	5000K	70	580	693	178	414	199	L150-5070502400000	
	5700K	70	570	683	175	408	196	L150-5770502400000	
	6500K	70	570	677	173	404	195	L150-6570502400000	
	2200K	80	440	510	131	305	147	L150-2280502400000	
	2700K	80	500	593	152	354	171	L150-2780502400000	
	3000K	80	516	615	158	367	177	L150-3080502400000	
	3500K	80	527	620	159	370	178	L150-3580502400000	
	4000K	80	539	645	165	385	185	L150-4080502400000	
	5000K	80	539	645	165	385	185	L150-5080502400000	
	5700K	80	539	644	165	385	185	L150-5780502400000	
	6500K	80	539	628	161	375	181	L150-6580502400000	
	2700K	90	414	475	122	284	137	L150-2790502400000	
	3000K	90	428	490	126	293	141	L150-3090502400000	
	3500K	90	445	510	131	305	147	L150-3590502400000	
	4000K	90	456	530	136	316	152	L150-4090502400000	
	5000K	90	456	530	136	316	152	L150-5090502400000	
	5700K	90	456	530	136	316	152	L150-5790502400000	
	LUXEON 5050 Round LES 6V	2200K	70	515	587	150	350	169	L150-2270500600000
		2700K	70	535	640	164	382	184	L150-2770500600000
		3000K	70	553	667	171	398	192	L150-3070500600000
		3500K	70	600	686	176	410	197	L150-3570500600000
		4000K	70	580	693	178	414	199	L150-4070500600000
		5000K	70	580	693	178	414	199	L150-5070500600000
5700K		70	570	683	175	408	196	L150-5770500600000	
6500K		70	570	677	173	404	195	L150-6570500600000	
2200K		80	440	510	131	305	147	L150-2280500600000	
2700K		80	500	593	152	354	171	L150-2780500600000	
3000K		80	516	615	158	367	177	L150-3080500600000	
3500K		80	527	620	159	370	178	L150-3580500600000	
4000K		80	539	645	165	385	185	L150-4080500600000	
5000K		80	539	645	165	385	185	L150-5080500600000	
5700K		80	539	644	165	385	185	L150-5780500600000	
6500K		80	539	628	161	375	181	L150-6580500600000	
2700K		90	414	475	122	284	137	L150-2790500600000	
3000K		90	428	490	126	293	141	L150-3090500600000	
3500K		90	445	510	131	305	147	L150-3590500600000	
4000K		90	456	530	136	316	152	L150-4090500600000	
5000K		90	456	530	136	316	152	L150-5090500600000	
5700K		90	456	530	136	316	152	L150-5790500600000	

Table continued on next page:

- Correlated color temperature is not targeted at T_j=85°C.
- Luminous flux and CRI are based upon mounted package on highly reflective surface at T_j=25°C. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
- Lumileds maintains a tolerance of ±2 on CRI and ±7% on luminous flux measurements.
- Parts are specified at rated current: LUXEON 5050 Round LES/LUXEON 5050 HE: 6V - 640mA, 24V - 160mA. Rated current of LUXEON 5050 Square LES: 6V - 800mA, 30V - 160mA.
- Parts can also be compared at same driving current regardless of their rated current. And in table 1a., such driving current is: LUXEON 5050 Round LES/LUXEON 5050 HE/LUXEON 5050 Square LES: 6V - 360mA, 24V/30V - 90mA.
- With Nightscape technology inside.

LUXEON 5050 product performance at rated current, T_j=25°C, Continued.

PART	NOMINAL CCT ^[1]	MINIMUM CRI ^[2, 3]	LUMINOUS FLUX ^[2, 3] (lm)		TYPICAL LUMINOUS EFFICACY (lm/W)	LUMINOUS FLUX ^[2, 3] (lm)	TYPICAL LUMINOUS EFFICACY (lm/W)	PART NUMBER	
			MINIMUM	TYPICAL		TYPICAL			
			RATED CURRENT ^[4]				SAME DRIVING CURRENT ^[5]		
LUXEON 5050 Square LES 30V	1850K ^[5]	645	693	142	414	159	159	L150-NSC15030000S0	
	1800K	556	598	123	358	137	137	L150-18705030000S0	
	2200K	621	717	147	429	165	165	L150-22705030000S0	
	2700K	693	792	162	474	182	182	L150-27705030000S0	
	3000K	720	813	167	486	187	187	L150-30705030000S0	
	3500K	729	838	172	501	193	193	L150-35705030000S0	
	4000K	743	850	174	508	195	195	L150-40705030000S0	
	5000K	743	850	174	508	195	195	L150-50705030000S0	
	5700K	738	840	172	502	193	193	L150-57705030000S0	
	6500K	720	825	169	493	190	190	L150-65705030000S0	
	2200K	586	630	130	377	145	145	L150-22805030000S0	
	2700K	650	695	143	416	160	160	L150-27805030000S0	
	3000K	665	730	150	437	168	168	L150-30805030000S0	
	3500K	679	735	151	440	169	169	L150-35805030000S0	
	4000K	700	768	158	459	177	177	L150-40805030000S0	
	5000K	702	768	158	459	177	177	L150-50805030000S0	
	5700K	700	768	158	459	177	177	L150-57805030000S0	
	6500K	688	740	152	443	171	170	L150-65805030000S0	
	2700K	558	600	123	359	138	138	L150-27905030000S0	
	3000K	586	630	130	377	145	145	L150-30905030000S0	
	3500K	600	640	132	383	148	147	L150-35905030000S0	
	4000K	609	655	135	392	151	151	L150-40905030000S0	
	5000K	618	665	137	398	153	153	L150-50905030000S0	
	5700K	605	650	134	389	150	149	L150-57905030000S0	
	LUXEON 5050 Square LES 6V	1850K ^[5]	50	645	693	142	337	165	L150-NSC15006000S0
		1800K	70	556	598	123	291	142	L150-18705006000S0
		2200K	70	621	717	147	349	170	L150-22705006000S0
		2700K	70	693	792	162	386	188	L150-27705006000S0
3000K		70	720	813	167	396	193	L150-30705006000S0	
3500K		70	729	838	172	408	199	L150-35705006000S0	
4000K		70	743	850	174	414	202	L150-40705006000S0	
5000K		70	743	850	174	414	202	L150-50705006000S0	
5700K		70	738	840	172	409	199	L150-57705006000S0	
6500K		70	720	825	169	402	196	L150-65705006000S0	
2200K		80	586	630	130	307	150	L150-22805006000S0	
2700K		80	650	695	143	338	166	L150-27805006000S0	
3000K		80	665	730	150	355	174	L150-30805006000S0	
3500K		80	679	735	151	358	175	L150-35805006000S0	
4000K		80	700	768	158	374	183	L150-40805006000S0	
5000K		80	702	768	158	374	183	L150-50805006000S0	
5700K		80	700	768	158	374	183	L150-57805006000S0	
6500K		80	688	740	152	360	176	L150-65805006000S0	
2700K		90	558	600	123	292	143	L150-27905006000S0	
3000K		90	586	630	130	307	150	L150-30905006000S0	
3500K		90	600	640	132	312	152	L150-35905006000S0	
4000K		90	609	655	135	319	156	L150-40905006000S0	
5000K		90	618	665	137	324	158	L150-50905006000S0	
5700K		90	605	650	134	316	155	L150-57905006000S0	

Table continued on next page:

1. Correlated color temperature is hot targeted at T_j=85°C.
2. Luminous flux and CRI are based upon mounted package on highly reflective surface at T_j=25°C. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
3. Lumileds maintains a tolerance of ±2 on CRI and ±7% on luminous flux measurements.
4. Parts are specified at rated current: LUXEON 5050 Round LES/LUXEON 5050 HE: 6V - 640mA, 24V - 160mA. Rated current of LUXEON 5050 Square LES: 6V - 800mA, 30V - 160mA.
5. Parts can also be compared at same driving current regardless of their rated current. And in table 1a., such driving current is: LUXEON 5050 Round LES/LUXEON 5050 HE/LUXEON 5050 Square LES: 6V - 360mA, 24V/30V - 90mA.
6. With Nightscape technology inside.

LUXEON 5050 product performance at rated current, T_j=25°C, Continued.

PART	NOMINAL CCT ^[1]	MINIMUM CRI ^[2, 3]	LUMINOUS FLUX ^[2, 3] (lm)		TYPICAL LUMINOUS EFFICACY (lm/W)	LUMINOUS FLUX ^[2, 3] (lm)	TYPICAL LUMINOUS EFFICACY (lm/W)	PART NUMBER
			MINIMUM	TYPICAL		TYPICAL		
			RATED CURRENT ^[4]				SAME DRIVING CURRENT ^[5]	
LUXEON 5050 HE 24V	1800K	70	455	498	129	296	143	L150-18705024000H0
	2200K	70	544	608	157	361	174	L150-22705024000H0
	2700K	70	602	675	174	401	194	L150-27705024000H0
	3000K	70	623	694	179	412	199	L150-30705024000H0
	3500K	70	632	707	183	420	203	L150-35705024000H0
	4000K	70	651	725	187	431	208	L150-40705024000H0
	5000K	70	651	724	187	430	208	L150-50705024000H0
	5700K	70	640	713	184	423	205	L150-57705024000H0
	6500K	70	637	711	184	422	204	L150-65705024000H0
	2200K	80	474	520	134	309	149	L150-22805024000H0
	2700K	80	539	598	154	355	172	L150-27805024000H0
	3000K	80	563	625	161	371	179	L150-30805024000H0
	3500K	80	586	650	168	386	186	L150-35805024000H0
	4000K	80	597	662	171	393	190	L150-40805024000H0
	5000K	80	597	660	170	392	189	L150-50805024000H0
	5700K	80	595	654	169	388	188	L150-57805024000H0
	6500K	80	586	652	168	387	187	L150-65805024000H0
	2700K	90	465	503	130	299	144	L150-27905024000H0
	3000K	90	485	525	136	312	151	L150-30905024000H0
	3500K	90	502	544	140	323	156	L150-35905024000H0
	4000K	90	512	558	144	331	160	L150-40905024000H0
	5000K	90	512	560	145	333	161	L150-50905024000H0
	5700K	90	512	560	145	333	161	L150-57905024000H0
	1800K	70	455	496	128	295	142	L150-1870502400TH0
	2200K	70	544	605	156	359	174	L150-2270502400TH0
	2700K	70	602	672	174	399	193	L150-2770502400TH0
	3000K	70	623	691	178	410	198	L150-3070502400TH0
	3500K	70	632	704	182	418	202	L150-3570502400TH0
	4000K	70	651	722	186	429	207	L150-4070502400TH0
	5000K	70	651	721	186	428	207	L150-5070502400TH0
5700K	70	640	710	183	422	204	L150-5770502400TH0	
6500K	70	637	708	183	420	203	L150-6570502400TH0	
2200K	80	474	515	133	306	148	L150-2280502400TH0	
2700K	80	539	586	151	348	168	L150-2780502400TH0	
3000K	80	563	612	158	363	176	L150-3080502400TH0	
3500K	80	586	643	166	382	184	L150-3580502400TH0	
4000K	80	597	660	170	392	189	L150-4080502400TH0	
5000K	80	597	658	170	391	189	L150-5080502400TH0	
5700K	80	595	652	168	387	187	L150-5780502400TH0	
6500K	80	586	650	168	386	186	L150-6580502400TH0	

Table continued on next page:

1. Correlated color temperature is hot targeted at T_j=85°C.
2. Luminous flux and CRI are based upon mounted package on highly reflective surface at T_j=25°C. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
3. Lumileds maintains a tolerance of ±2 on CRI and ±7% on luminous flux measurements.
4. Parts are specified at rated current: LUXEON 5050 Round LES/LUXEON 5050 HE: 6V - 640mA, 24V - 160mA. Rated current of LUXEON 5050 Square LES: 6V - 800mA, 30V - 160mA.
5. Parts can also be compared at same driving current regardless of their rated current. And in table 1a., such driving current is: LUXEON 5050 Round LES/LUXEON 5050 HE/LUXEON 5050 Square LES: 6V - 360mA, 24V/30V - 90mA.
6. With Nightscape technology inside.

LUXEON 5050 product performance at rated current, T_j=25°C, Continued.

PART	NOMINAL CCT ^[1]	MINIMUM CRI ^[2, 3]	LUMINOUS FLUX ^[2, 3] (lm)		TYPICAL LUMINOUS EFFICACY (lm/W)	LUMINOUS FLUX ^[2, 3] (lm)	TYPICAL LUMINOUS EFFICACY (lm/W)	PART NUMBER
			MINIMUM	TYPICAL		TYPICAL		
			RATED CURRENT ^[4]				SAME DRIVING CURRENT ^[5]	
LUXEON 5050 HE 6V	1800K	70	455	498	129	296	143	L150-18705006000H0
	2200K	70	544	608	157	361	174	L150-22705006000H0
	2700K	70	602	675	174	401	194	L150-27705006000H0
	3000K	70	623	694	179	412	199	L150-30705006000H0
	3500K	70	632	707	183	420	203	L150-35705006000H0
	4000K	70	651	725	187	431	208	L150-40705006000H0
	5000K	70	651	724	187	430	208	L150-50705006000H0
	5700K	70	640	713	184	423	205	L150-57705006000H0
	6500K	70	637	711	184	422	204	L150-65705006000H0
	2200K	80	474	520	134	309	149	L150-22805006000H0
	2700K	80	539	598	154	355	172	L150-27805006000H0
	3000K	80	563	625	161	371	179	L150-30805006000H0
	3500K	80	586	650	168	386	186	L150-35805006000H0
	4000K	80	597	662	171	393	190	L150-40805006000H0
	5000K	80	597	660	170	392	189	L150-50805006000H0
	5700K	80	595	654	169	388	188	L150-57805006000H0
	6500K	80	586	652	168	387	187	L150-65805006000H0
	2700K	90	465	503	130	299	144	L150-27905006000H0
	3000K	90	485	525	136	312	151	L150-30905006000H0
	3500K	90	502	544	140	323	156	L150-35905006000H0
	4000K	90	512	558	144	331	160	L150-40905006000H0
	5000K	90	512	560	145	333	161	L150-50905006000H0
	5700K	90	512	560	145	333	161	L150-57905006000H0
	1800K	70	455	496	128	295	142	L150-18705006000TH0
	2200K	70	544	605	156	359	174	L150-22705006000TH0
	2700K	70	602	672	174	399	193	L150-27705006000TH0
	3000K	70	623	691	178	410	198	L150-30705006000TH0
	3500K	70	632	704	182	418	202	L150-35705006000TH0
	4000K	70	651	722	186	429	207	L150-40705006000TH0
	5000K	70	651	721	186	428	207	L150-50705006000TH0
	5700K	70	640	710	183	422	204	L150-57705006000TH0
	6500K	70	637	708	183	420	203	L150-65705006000TH0
	2200K	80	474	515	133	306	148	L150-22805006000TH0
	2700K	80	539	586	151	348	168	L150-27805006000TH0
	3000K	80	563	612	158	363	176	L150-30805006000TH0
	3500K	80	586	643	166	382	184	L150-35805006000TH0
	4000K	80	597	660	170	392	189	L150-40805006000TH0
	5000K	80	597	658	170	391	189	L150-50805006000TH0
	5700K	80	595	652	168	387	187	L150-57805006000TH0
	6500K	80	586	650	168	386	186	L150-65805006000TH0

Table continued on next page:

1. Correlated color temperature is hot targeted at T_j=85°C.
2. Luminous flux and CRI are based upon mounted package on highly reflective surface at T_j=25°C. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
3. Lumileds maintains a tolerance of ±2 on CRI and ±7% on luminous flux measurements.
4. Parts are specified at rated current: LUXEON 5050 Round LES/LUXEON 5050 HE: 6V - 640mA, 24V - 160mA. Rated current of LUXEON 5050 Square LES: 6V - 800mA, 30V - 160mA.
5. Parts can also be compared at same driving current regardless of their rated current. And in table 1a., such driving current is: LUXEON 5050 Round LES/LUXEON 5050 HE/LUXEON 5050 Square LES: 6V - 360mA, 24V/30V - 90mA.
6. With Nightscape technology inside.

LUXEON 5050 product performance at rated current, $T_j=25^{\circ}\text{C}$, Continued.

PART	NOMINAL CCT ⁽¹⁾	MINIMUM CRI ^(2, 3)	LUMINOUS FLUX ^(2, 3) (lm)		TYPICAL LUMINOUS EFFICACY (lm/W)	LUMINOUS FLUX ^(2, 3) (lm)	TYPICAL LUMINOUS EFFICACY (lm/W)	PART NUMBER
			MINIMUM	TYPICAL		TYPICAL		
			RATED CURRENT ⁽⁴⁾			SAME DRIVING CURRENT ⁽⁵⁾		
LUXEON 5050 HE Plus - 6V	1800K	70	474	510	136	296	144	L150-1870500600HH0
	2200K	70	582	626	167	364	177	L150-2270500600HH0
	2700K	70	639	687	183	399	194	L150-2770500600HH0
	3000K	70	658	708	189	411	200	L150-3070500600HH0
	3500K	70	675	725	194	421	205	L150-3570500600HH0
	4000K	70	694	746	199	433	211	L150-4070500600HH0
	5000K	70	685	737	197	428	208	L150-5070500600HH0
	5700K	70	676	727	194	422	206	L150-5770500600HH0
	6500K	70	670	720	192	418	204	L150-6570500600HH0
	2200K	80	504	541	144	314	153	L150-2280500600HH0
	2700K	80	581	624	167	363	176	L150-2780500600HH0
	3000K	80	600	645	172	375	182	L150-3080500600HH0
	3500K	80	621	667	178	387	189	L150-3580500600HH0
	4000K	80	636	684	183	397	193	L150-4080500600HH0
	5000K	80	642	690	184	401	195	L150-5080500600HH0
	5700K	80	632	680	182	395	192	L150-5780500600HH0
	6500K	80	628	675	180	392	191	L150-6580500600HH0

Notes:

- Correlated color temperature is hot targeted at $T_j=85^{\circ}\text{C}$.
- Luminous flux and CRI are based upon mounted package on highly reflective surface at $T_j=25^{\circ}\text{C}$. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
- Lumileds maintains a tolerance of ± 2 on CRI and $\pm 7\%$ on luminous flux measurements.
- Parts are specified at rated current: LUXEON 5050 Round LES/LUXEON 5050 HE: 6V - 640mA, 24V - 160mA. Rated current of LUXEON 5050 Square LES: 6V - 800mA, 30V - 160mA.
- Parts can also be compared at same driving current regardless of their rated current. And in table 1a., such driving current is: LUXEON 5050 Round LES/LUXEON 5050 HE/LUXEON 5050 Square LES: 6V - 360mA, 24V/30V - 90mA.
- With Nightscape technology inside.

Percent Blue for LUXEON 5050 with NightScape Technology at test current, $T_j=25^{\circ}\text{C}$.

PART NUMBER	BLUE CONTENT ⁽¹⁾	
	TYPICAL	MAXIMUM
L150-NSC15030000S0	1%	2%
L150-NSC15006000S0	1%	2%

Notes:

- Blue content is defined as the radiometric flux emitted between 400nm and 500nm divided by the total radiometric power.